

REMARKS

Applicants's attorney thanks the Examiner for her comments. Independent Claim 23 has been amended to replace the term "nonabsorbent" with "non-retentive." This amendment is supported on page 13 of Applicant's specification. As explained on page 13, a non-retentive nonwoven web is one which transmits liquids.

The rejection of Claims 30, 31, 36 and 37 under 35 U.S.C. §112, second paragraph as indefinite, is respectfully traversed in view of the foregoing amendment. The antecedent basis for the phrase "antimicrobial non-retentive nonwoven web" is provided in amended Claim 23, from which the rejected claims depend.

The rejection of Claims 1-31 under 35 U.S.C. §103(a) as obvious over U.S. Publication 2002/0077612 (Quincy, III) in view of U.S. Patent 6,548,054 (Worley et al.) is respectfully traversed.

Applicant's independent Claims 1, 13 and 23 each require *inter alia* an antimicrobial nonwoven web comprising nonwoven fibers, and a halogenated polystyrene hydantoin including a plurality of repeating units and halogen atoms chemically linked to the repeating units. Each claim further requires the repeating units to include an amide nitrogen atom and an imide nitrogen atom. Claims 13 and 23 require the halogen to be chlorine.

Claims 1, 13 and 23 further require at least about 90% of the halogen atoms to be chemically linked to the amide nitrogen atoms. Because each of the amide nitrogen atoms is capable of accepting only one halogen atom, this limitation means, by inference and deduction, that most or substantially all of the imide nitrogen atoms will be free of halogens.

Applicant has discovered that halogenated polystyrene hydantoins are more stable, and less likely to release free halogen during use, when the halogen is linked to the amide nitrogen sites but not to the imide nitrogen sites (specification, pp. 3 and 7). This has clear advantages for personal care articles which contact or come close to human skin during use. Less release of halogen means less potential for wearer irritation and rash.

The Examiner cites Quincy, III as disclosing an absorbent article including an absorbent core formed from a plurality of nonwoven fibers, that includes a halogenated

polystyrene hydantoin. The hydantoin can also be used in the outer cover. According to the Examiner, Quincy, III does not disclose specifics of the polystyrene hydantoin.

However, Quincy, III does disclose a particular formula for a polystyrene hydantoin which can be $(C_{12}H_{10}X_2N_2O_2)_n$, which X is chlorine or bromine (page 3, paragraph 37). Assuming that each repeating unit includes an amide nitrogen atom and an imide nitrogen atom, the formula implies that both the amide nitrogen and the imide nitrogen are halogenated in a typical repeating unit. In other words, Applicant's claim limitation requiring at least about 90% of the halogen atoms chemically linked to amide nitrogen atoms, is not satisfied by the chemical formula in Quincy, III which discloses two (instead of one) halogen atoms per repeating agent.

The Examiner cites Worley et al. as disclosing Applicant's halogenated polystyrene hydantoin in Col. 4, lines 34-63, and states that it would have been obvious to substitute the hydantoin of Worley et al. in the structure of Quincy, III. The chemical formula in Worley et al. is directed to a highly crosslinked polystyrene hydantoin bead in which a first halogen atom X is chemically linked to the amide nitrogen, and a second halogen atom X' is chemically linked to the imide nitrogen, in each repeating unit.

Put another way, half of the halogen atoms in the hydantoin of Worley et al. are linked to the amide nitrogen atom, and the other half are linked to the imide nitrogen atom. The disclosed formula comes nowhere close to Applicant's claim limitation requiring at least about 90% of the halogen atoms chemically linked to the amide nitrogen atoms.

For at least these reasons, the combination of Quincy, III and Worley et al. does not render Applicant's Claims 1-31 obvious over the prior art.

The rejection of Claims 32-37 under 35 U.S.C. §103(a) as obvious over Quincy, III in view of Worley et al., further in view of Beerse et al. (U.S. Patent 6,183,763) is respectfully traversed. Claims 32-37 each depend from Claim 1, 13 or 23, and are patentable for at least the same reasons. Furthermore, Beerse et al. does not disclose the use of a halogenated polystyrene hydantoin having amide and imide groups in the repeating units, in which at least about 90% of the halogen atoms are chemically linked to the amide groups.

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Applicant believes that the claims, as now presented, are in condition for allowance. If the Examiner feels that any issues remain unresolved, then Applicant's attorney respectfully requests a telephone call from the Examiner, and a telephone interview.

Respectfully submitted,



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